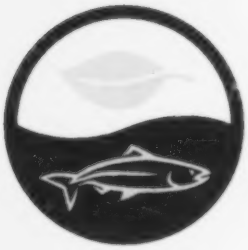

Pacific Fisheries Resource Conservation Council

Perspectives on Salmon Enhancement and Hatcheries:

What the Council Heard

May 2005

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PERSPECTIVES ON SALMON ENHANCEMENT AND HATCHERIES:

WHAT THE COUNCIL HEARD

Pacific Fisheries Resource Conservation Council

May 2005

Perspectives on Salmon Enhancement and Hatcheries: What the Council Heard
Pacific Fisheries Resource Conservation Council

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Pacific Fisheries Resource Conservation Council
Conseil pour la conservation des ressources halieutiques du pacifique

May 2005

The Hon. Geoff Regan
Minister of Fisheries and Oceans
Government of Canada
Parliament Buildings
Ottawa

The Hon. John van Dongen
Minister of Agriculture, Food and Fisheries
Province of British Columbia
Legislative Building
Victoria

Dear Ministers:

The effort to maintain and rebuild healthy Pacific salmon stocks has involved several initiatives, including enhancement activities and hatchery operations intended to supplement naturally-spawning salmon stocks. This effort has not been without controversy, particularly regarding the ways in which wild salmon populations might be put at risk.

At the beginning of 2004, our Council released a consultants' report that was intended to contribute various perspectives on the interaction of enhanced and wild salmon and to begin an informative public debate on the future of enhancement.

Our Council decided to produce this summary of perspectives and points raised in the subsequent discussions last year concerning salmon enhancement and hatcheries. In essence, this is a report on what we heard.

This paper is not meant to present our advice. It is a compendium of views expressed by stakeholders, interest groups, scientists and citizens who participated in the community meetings and bilateral discussions we sponsored.

After further consideration, we will try to provide helpful recommendations on what should be done to improve salmon enhancement and minimize the risks to wild salmon.

With my fellow members of the Pacific Fisheries Resource Conservation Council, I wish to thank the dozens of individuals who were involved in the several meetings, interviews and informal discussions where they contributed valuable information and opinions.

Dr. Paul LeBlond
Interim Chairman
Pacific Fisheries Resource Conservation Council

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Pacific Fisheries Resource Conservation Council
Conseil pour la conservation des ressources halieutiques du pacifique

Mai 2005

L'honorable Geoff Regan
Ministre des Pêches et des Océans
du Canada
Gouvernement du Canada
Édifices du Parlement
Ottawa

L'honorable John van Dongen
Ministre de l'Agriculture, de l'Alimentation
et des Pêches
Gouvernement de la Colombie-Britannique
Édifice législatif
Victoria

Chers Messieurs les ministres,

Les efforts visant à rétablir et à maintenir des stocks sains de saumons du Pacifique ont donné naissance à plusieurs initiatives, notamment des activités de mise en valeur et d'élevage visant à soutenir certains stocks de saumons qui fraient naturellement. Ces efforts n'ont pas été sans rencontrer divers niveaux de controverses, en particulier pour ce qui est des risques potentiels encourus par les populations de saumons sauvages.

Début 2004, notre Conseil a publié un rapport préparé par un conseiller externe, rapport dont le but était d'exposer diverses perspectives concernant l'interaction entre les saumons d'élevage et les saumons sauvages et d'amorcer un débat public informatif sur le futur des activités de mise en valeur.

Notre Conseil a décidé de préparer ce résumé des perspectives et des points exprimés au cours des discussions ultérieures de l'année dernière à propos des activités de mise en valeur et des écloseries. Nous y avons rassemblé ce que nous avons entendu.

L'objet de ce document n'est pas de présenter de quelconques conseils mais plutôt de constituer un recueil des opinions exprimées par les divers intervenants, groupes d'intérêts, chercheurs et citoyens qui ont participé aux réunions communautaires et aux discussions bilatérales que nous avons parrainées.

Une fois terminé un examen plus approfondi, nous essaierons de formuler des recommandations concernant la manière d'améliorer la mise en valeur des saumons et de minimiser les risques auxquels sont exposés les saumons sauvages.

Avec mes collègues membres du Conseil pour la conservation des ressources halieutiques du Pacifique, je tiens à remercier les dizaines de personnes qui ont participé aux multiples réunions, interviews et discussions informelles au cours desquels elles ont bien voulu nous communiquer leurs opinions et de fort utiles informations.

Dr Paul LeBlond
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1. The PFRCC's Approach to Discussing Interactions between Enhanced and Wild Salmon

Salmon enhancement and hatcheries have been of interest to the Pacific Fisheries Resource Conservation Council (PFRCC) since our inception in 1998. Council members have recognized the obvious value of salmonid enhancement in rebuilding and restoring salmon stocks in British Columbia. Council members also recognize that salmonid enhancement has become an integral part of many communities throughout the Pacific region.

Along with the many benefits, enhancement has consequences in salmonid-producing ecosystems. Human intervention in ecosystems, while intended to achieve positive results for people, can have unanticipated ecological effects, both good and bad, and salmonid enhancement is no exception. While enhancement and its integration into the overall management of the salmon resource have made significant advances in recent decades, concerns about the impacts on wild salmon and their ecosystems have persisted.

1.1 Background

In 2003 the PFRCC, in its public role in addressing important issues concerning Pacific salmon, initiated a public discussion about the future of salmon enhancement and hatcheries in British Columbia. In keeping with the limitations of its conservation mandate, the Council set its focus on the interactions between enhanced and wild salmon, rather than trying to encompass all of the economic, social, technical and other matters pertaining to hatcheries. As a first step, the Council selected a consulting firm, based on their qualifications and competitive bidding, to produce a background paper compiling the available information and setting out the various positions on relevant issues that seemed to require consideration and clarification. The consultants' report entitled *Making Sense of the Debate about Hatchery Impacts: Interactions Between Enhanced and Wild Salmon on Canada's Pacific Coast* was released in March 2004 to provide public information and serve as a basis for comment. The 186-page report contained extensive data and information from many sources, as well as the consultants' conclusions, and proposed guiding principles for pursuing enhancement objectives while minimizing impacts on wild salmon. The views that were stated and implied in that report were presented to the Council to help prompt dialogue, rather than to serve as definitive statements of all facets of the issues.

1.2 Providing Opportunities for Public Comment

At the time of the report's release, the PFRCC invited the public to comment on the report through letters, submissions, community meetings, bilateral meetings and informal discussions. Groups actively involved in fisheries and enhancement issues were contacted, and urged to participate. The findings in the consultants' report were widely covered in the media, with one newspaper article appearing locally before the Nanaimo community meeting, and one before the Chilliwack meeting. Every effort was made to accommodate everyone who expressed a wish to participate in the community meetings and to meet with the Council.

In March 2003, the PFRCC held community meetings in Prince Rupert, Nanaimo, and Chilliwack to encourage comment and dialogue. While Council members had hoped to meet in more than three communities outside Vancouver, the budget and time limitations did not permit this. The Council was invited to meet in other coastal communities, but did not have the resources to satisfy all of those requests for on-site sessions.

In the weeks following the community meetings, Council members held a series of bilateral discussions with groups of stakeholders, government officials and experts to hear from them directly and to gain a better understanding of salmon enhancement from their various points of view.

Council members are grateful for the candid and valuable comments provided to them. While many participants criticized the consultants' report and its sponsorship by the Council, it was recognized by many that the issues concerning hatcheries were contentious and needed airing in a productive way.

As a result of those highly informative discussions and written briefs, the Council decided to produce this short "what-we-heard" report as an interim step towards an advisory report. That report will contain specific recommendations on the policy and operational direction of salmon hatcheries and enhancement activities in British Columbia.

Although Council members attending the community and stakeholder meetings took note of all of the views expressed to them, this interim report provides only an abbreviated summary of the extensive discussions that we were part of, and does not profess to have captured all of the ideas and comments that were expressed and heard.

2. Synopsis of Public Meetings

This section provides a brief summary of issues raised at the three community meetings held by the PFRCC in Chilliwack, Nanaimo and Prince Rupert. The meetings were open to the public and followed the release in March 2004 of the consultants' report *Making Sense of the Debate about Hatchery Impacts: Interactions between Enhanced and Wild Salmon on Canada's Pacific Coast.*

2.1 Purpose and Process

The principal purpose of the public meetings was to enable Council to directly receive input to test and supplement the information contained in the consultant's report.

Each meeting followed a similar format. Following introductions and an overview by the PFRCC's science advisor, Dr. Brian Riddell, the consultants presented an overview of their report. This was followed, at the Prince Rupert meeting, by an open dialogue. At the Nanaimo and Chilliwack meetings, participants were divided into small groups to discuss a series of questions, and then shared the groups' information and perspectives in a plenary discussion.

2.2 Meetings and Participation

Prince Rupert, March 13 – 19 participants
Nanaimo, March 20 – 48 participants
Chilliwack, March 21 – 52 participants

2.3 Concerns about the Purpose and Process

The consultants' report was intended to be a starting point for discussions, but instead became the main focus of the public meetings. Those who had not had the opportunity to review the report before the meeting expressed frustration. For some participants, this was the first time they were hearing that hatcheries could have harmful impacts on wild fish, and they were struggling to assimilate basic information about the science questions being asked. Some participants expressed their discontent with the topic itself—that of examining potentially harmful impacts of hatchery fish on wild fish. Some pointed out that in many places, the damage to freshwater and estuary habitat had already been done—so if we want to have fisheries, we need to have hatcheries. Some were concerned that examining these impacts might lead to the shutting down of hatcheries, and they did want not this risk to be undertaken. In addition, there was scepticism about the consultation process itself. And, there was concern that the PFRCC report could be used to justify funding cutbacks and hatchery closures.

There were clear signs of consultation fatigue—frustration at having provided input in the past without seeing any tangible results coming from their efforts. In that regard the participants cited the Skeena Watershed Plan, the Salmonid Enhancement Program, and the Wild Salmon Policy. Some participants questioned the extent to which their voices would make any difference.

2.4 Matters Raised in the Discussions

Questioning the goal of enhancement

Participants offered a variety of goals for enhancement including restoring endangered species; compensating for fishing impacts; producing as many fish as fast as possible because fish are an important source of food; and supporting wild fish through hatchery efforts.

DFO's priorities in their enhancement activities were questioned directly, with some participants suspecting that DFO is trying to offload its responsibilities for enhancement rather than effectively managing and regulating it.

Inadequacy of available research

Participants in all of the community meetings stressed the need for much more research to assess stocks, freshwater habitat, marine habitat, and fisheries.

Many felt discouraged by the large number of uncertainties expressed in the PFRCC's commissioned report. They did not see how the report's seventh and final guiding principle—act on what we know—could be followed, given such a high level of uncertainty. Participants were particularly sceptical about the evidence on genetic impacts outlined in the report.

Failure to make use of the data gathered by hatcheries

Some participants were concerned that the data from all their work in tagging fish were not being used in stock assessment. They also acknowledged that releasing more marked fish would also necessitate more monitoring, which is not being done adequately now. There were many pleas for recognizing the value of hatcheries as a source of scientific information—particularly small hatcheries, which could provide information about smaller stocks—as well as for fish production. There was a widespread conviction that there should be more data made available locally, and that local participants should have input into the design and execution of the research.

Not enough focus on the positive aspects of enhancement

The consultants' report was criticized for focusing predominantly on the potential negative impacts to wild salmon, without considering the successes of enhancement. Many also cited the positive effects of dramatic changes in DFO management practices over the past decade; some even felt that, since the implementation of selective fishing, mixed stock fisheries were no longer a problem.

Negative consequences if enhancement were stopped

Although some felt that ending enhancement would have negative effects on wild fish populations, most of the concerns that we heard were societal ones. Some felt that the entire volunteer base in BC, currently 20,000 strong, could be lost if enhancement activities were stopped. Some believed strongly that stopping enhancement would mean the death of commercial fisheries. Some pointed to the economic value of sport fishing, and felt that hatchery fish are what is keeping the industry alive. There was a widespread belief that without enhancement support for commercial and recreational fisheries, fish farms would be the only alternative for providing fish for food, and this would have a much more severe environmental impact than hatcheries do now. One participant pointed to the current plight of steelhead as an example of what happens when you let the academic scientists and the financial managers have their way.

Habitat problems should be the focus, not enhancement problems

There was fervent and widespread belief that focusing on the negative impacts of enhancement is wrongheaded and dangerous, given the much more serious habitat problems that are not being attended to. These included: habitat destruction through logging, mining, agricultural development and urban development; fish farming; predators; global warming; poor nutrient levels in the ocean; ocean ranching and competition with smolts from Alaska and Japan; plundering by foreign fishing fleets; the BC government selling crown lands for development in order to generate revenue; and provincial and local-government loosening of the streamside protection legislation. Better enforcement was seen as the key to solving many of these habitat problems.

Enhancement promotes public education and community stewardship

For some, there is significant added value in hatcheries and other enhancement activities in developing local community interest, an educated volunteer base, and community-based stewards who will always be on watch for local problems. The value of hatcheries in encouraging cooperative projects with local First Nations was also put forward.

Many advocated restoring funding for stewardship activities, since volunteers are now burning out and leaving for lack of leadership and coordination. Some felt that too much funding was going toward experts and contractors, and that local citizens should receive more support because they are the ones most committed and knowledgeable about what's going on locally. At the same time, there was widespread support for volunteers, First Nations, technical experts, and government scientists and managers working together more effectively, combining their strengths and resources.

Funding cuts are looking for an excuse, and this report won't help

With both the federal and provincial governments looking for ways to cut expenses, participants had concerns about the future of salmon enhancement and habitat protection, and were worried that the consultants' report could be used to justify budget cuts. There was general agreement that not nearly enough was being spent now on fisheries assessment, management, or enforcement. Many felt that DFO was not their ally in defending the importance of fishing. Incredulity was expressed that more was not being invested to support the "multi-billion-dollar" sport-fishing and commercial-fishing industries.

Building cooperation at the community/watershed level

Among the suggestions on how best to move forward, given the information contained in the consultants' report, the most direct one was for community members to take the time needed to understand and respond to the issues raised. This activity would provide an opportunity for the various groups involved with fish and fishing to build cooperation within their community, and to sort out conflicting needs and interests. There was a general feeling that communities should have input into the re-assessment of enhancement programs. There was a strong endorsement of dealing with watershed management on a broader scale, emphasizing stewardship and local leadership.

Federal and provincial governments need to cooperate

Participants clearly believed that habitat protection would take cooperation between federal and provincial governments and that stronger relationships are needed along with more enforcement and stronger penalties. In particular, participants felt that both levels of government need to work together on programs such as ones supporting watershed-based management. This would require both to contribute resources, such as technical support, to the development of recovery plans, wild salmon policy, and operational guidelines for enhancement, aquaculture, fisheries, and habitat protection.

Practice enhancement without harm

Participants at all the public meetings advocated an approach to enhancement that would not harm wild stocks. There was a prevalent belief that a "natural", site-specific, common-sense approach would not be harmful. However there were varied notions of what constitutes "natural", and some of the proposed remedies were in conflict with each other. These conflicting suggestions included: matching the natural cycles of wild salmon and decreasing hatchery production when wild stocks decrease, instead of maintaining the level of hatchery production when wild stocks decrease, so that predators do not consume so many wild fish; determining how

to enhance the carrying capacity of streams so they can produce more fish, instead of adjusting fish production to suit the carrying capacity of natural systems; using natural approaches to enhancement, such as managed spawning channels and making solutions site-specific, rather than building more hatcheries to replace losses of wild fish; developing separate enhancement zones and wild zones in place of protecting wild fish everywhere. Smaller production facilities were considered less harmful than large production facilities. There was an underlying belief that when there is a decline in stocks, there must be a way to find the specific problem and then develop an appropriate solution.

Enhancement to secure stocks for fishing

While not wanting to harm wild salmon populations, participants were not willing to give up fishing and its related industries. They felt that the social and economic benefits of fishing must be maintained, and that it is not right to close down whole fisheries for the sake of a few weak stocks.

Although the majority view was weighted toward preferring hatchery fish to having no fish at all, there was still some call for putting conservation first and protecting wild salmon.

More funding needed for scientific research

There was a clear call for more scientific research on salmon stocks, including research on genetics, fishing impacts, stock status, ocean habitat, and freshwater habitat. Many stressed the value of additional funding for tagging and stock assessment to identify which systems are under stress, and for using and making available the assessment information that has already been gathered.

Encourage public participation

Participants felt that education and awareness programs should be developed so that the public can contribute as well, through enhancement activities and working with scientists and other experts. Some felt that hatcheries could be the centers for these activities. Many supported the value of citizen involvement in decision-making, especially regarding local fish. There was a strong feeling that governments were relying "solely on science" in making decisions, and that local community members could help make better decisions if governments would openly share information.

Re-evaluate funding priorities and look for other funding sources

Participants urged increased funding for enhancement and felt that citizens' groups should be involved in re-evaluating funding priorities. One suggestion for additional funding was to raise the price of sport fishing licences. Participants who were sport fishers said they would be glad to pay a higher enhancement tax if—and only if—the money goes to enforcement and conservation, and not into general revenues. They also urged making those who damage habitat pay—for example the fish farming industry, if it is found to be harming wild stocks.

Some praise for the PFRCC's consultation process

In spite of objections to the consultants' report and the way it was handled, the PFRCC was commended for asking important questions that can only be answered by bringing diverse voices together. Participants recognized how important it is for the diverse groups to trust each other enough to address the various issues together, despite differing values and views—since changes in enhancement programs could harm wild stocks and have a devastating effect on all types of fisheries.

3. Synopsis of Bilateral Meetings and Written Submissions

This chapter provides a brief summary of matters raised in the discussions with experts and stakeholders following the release of the consultants' report and conduct of the public meetings in March 2004.

3.1 Purpose and Process

The process for public involvement in this case was meant to provide open discussion of issues identified as priorities by individuals and groups participating in open-ended dialogues with Council members. Most of these individuals and organizations had requested a meeting; others were invited by the Council to participate.

The bilateral sessions were held after the three community meetings and allowed Council members to explore the issues at a level of detail that could not be accommodated in the broadly-based community meetings. The bilateral meetings also allowed follow-up on matters raised in the written submissions and the community meetings. They gave the opportunity to test the validity of some of the information on enhancement gathered from various sources.

The Council met with everyone who requested an opportunity to participate.

The bilateral meetings were meant to recognize the expertise and direct interest of organizations and individuals who could contribute to the consideration of the issues from their various points of view.

In the discussions, Council members asked for specific examples of enhancement activities and their subsequent impacts. This approach was taken to enable the Council to cite tangible instances and outcomes that could be readily understood by the public in the PFRCC advisory report that will be prepared.

3.2 Meetings and Participation

Subsequent to the public meetings, the Council members held the following bilateral sessions:

April 15 – Hatchery volunteers
April 15 – Hatchery manager
April 20 – Former DFO director
April 22 – DFO Science personnel
April 22 – Sportfishing Defence Alliance representatives
April 22 – BC Wildlife Federation representatives
April 23 – DFO Enhancement personnel
April 25 – Sport Fish Advisory Board at a plenary session
May 13 – Environmental stakeholders
May 21 – Government of BC personnel

3.3 Written Submissions

The Council also received and read letters and written submissions related to enhancement and hatcheries from several individuals, and from the following organizations:

BC Wildlife Federation
David Suzuki Foundation
Gitksan Watershed Authorities
Pacific Streamkeepers Federation
Raincoast Conservation Society
Seymour Salmonid Society
Sportfishing Defence Alliance
Toboggan Creek Salmon & Steelhead Enhancement Society

Council members also met with some of the individuals involved in these submissions; and the views of these organizations were heard in the community and bilateral meetings.

3.4 Matters Raised in the Bilateral Discussions and Written Submissions

The primary points raised by participants in the community meetings and reported in the preceding chapter "Synopsis of Public Meetings" were reiterated in the bilateral meetings between Council members and interested organizations, groups and individuals, as well as in the written submissions.

Some participants in the bilateral discussions felt that the consultants' report commissioned by the PFRCC did not fairly depict enhancement, and that it tended to overlook some of its merits.

Another criticism of the consultants' report was that, while it contained valuable new information, it did not readily differentiate information and views that had been previously contradicted or generally considered less relevant.

Some participants suggested that some of the serious problems cited in the report had occurred in the United States, not in Canada, and that the lessons learned from those experiences had enabled Canadian hatchery managers to avoid some very serious pitfalls. These comments reinforced the view of many participants that there is considerable benefit from, and a continuing need for, current and scientifically tested information to be made readily available to researchers, hatchery operators and volunteers involved in enhancement.

Institutional arrangements

Much of the discussion in the bilateral meetings revolved around DFO's Salmonid Enhancement Program and specific management issues, including the declines in assessment resources. These were also the topics where there was a wide divergence of views on what was needed and what was possible, given budgetary constraints and uncertainty about outcomes of investment in salmon enhancement.

There were similarly divergent views on where project funding and research activity should be directed in order to have the greatest impact. For instance, further enhancement might have significant value, but not necessarily be as cost-effective as other measures, such as additional assessment.

The Council heard that changes to various aspects of hatchery production should be investigated as means to maintain production while reducing hatchery impacts. For example, cycling production among hatcheries within a region could guard against a buildup of predators gathering at sites of predictable releases. Council members were told about the potential benefits of matching hatchery releases to ocean productivity, particularly in the Strait of Georgia, so that wild salmon are not so heavily impacted. Enhancement planning could be done so that mixed-stock fishery problems are anticipated and avoided.

The written submission of a north-coast First Nation organization that operated their own hatchery for several years argued for the benefits of small community hatcheries that have a conservation and stock-assessment focus. They felt that their hatchery operations were designed to reduce impacts on wild stocks, and that hatcheries can be a useful tool for stock assessment and stock recovery. They believe that wild stocks should have priority above enhanced stocks in decisions involving fisheries and all types of enhancement. Enhancement projects designed to rebuild wild stocks should be phased out after stock size rebuilds to self-sustaining levels. And they recommended that all enhancement projects have a built-in evaluation component to assess whether or not project objectives are being met.

Participants in the bilateral meetings also pointed out that measures to assist wild salmon productivity should involve habitat restoration, reduction of freshwater extraction, recognition of ocean conditions, and elimination of overfishing, among others.

Another point made was that there is a significant dilemma for fisheries managers who may have concerns about wild/hatchery salmon interaction, but do not typically have sufficient evidence to conclude that cutting back or shutting down hatcheries in a particular instance would lead to improved wild salmon returns.

Participants also pointed out that the US, Russia, Japan and Canada are all contributing to hatchery releases, so international collaboration is needed to reduce harmful effects on wild stocks throughout the north Pacific.

Information needs

The bilateral discussions provided an opportunity for more detailed information to be obtained by the participating Council members. One specific Council request at these bilateral events was for examples of the successful use of hatcheries or enhancement in restoring salmon populations where wild stocks had been lost. This led to the provision of examples of areas where enhancement projects had particular value in replacing lost wild populations. While there are generally-held views that in-stream enhancement is environmentally friendly, specific examples were provided where this was not true. All these examples enabled the Council to gain a better practical understanding of the rationale and operational issues involved in hatchery management.

Many stakeholder comments to the PFRCC emphasized that more is needed in terms of best-practice examples in the management of hatcheries and in raising public awareness of innovative measures being taken to improve enhancement. Some suggested that it might be timely to re-direct a portion of the public education component of hatchery promotion towards explaining the changes in hatchery practices, if the situation is primarily one of misinformation rather than substantive problems.

Some participants called for resources to be put into analyzing and writing up the considerable amount of data already collected through enhancement work, in order to learn more about interactions between hatchery and wild salmon in BC.

The lack of investment in monitoring the impacts of enhancement projects has been a persistent point of concern. The inability to measure the success or failure of many enhancement projects has been due to inadequate allocation of funds and lack of integration of the projects with other resource management, such as control of predators.

Extent and application of knowledge

The challenge of differentiating salmon stocks according to their genetic integrity was raised. The issue of whether or not "enhanced" salmon could threaten the genetic integrity of "wild" salmon was the subject of considerable attention. Again, the shortcomings of scientific knowledge are evident in the lack of measurement of enhancement impacts, especially given the variations in the ways enhanced salmon are produced and the declining levels of assessment by government fisheries managers. The critical comments on the genetics issues as they were raised in the consultants' paper reinforced the assertion of some participants that this may be a topic of continuing unresolved controversy, unless British Columbia-specific studies are conducted and concrete scientific information on the issue is obtained.

In several instances, Council members were told that there were many scientific studies related to hatchery-produced salmon, but not much concrete evidence emerging from them to prove or disprove the positions taken by advocates and opponents of enhancement on crucial matters of contention, such as genetic selection.

The Council was told of the importance of adaptation in the management of hatcheries based on available data and adoption of best practices. The corollary is that the funding of enhancement must permit management flexibility, not impede it by simply maintaining old practices and allocating expenditures for traditional activities.

Balancing environmental and social costs and benefits

Several participants suggested that more work is needed to account for the economic, social and community factors other than those that relate to wild/enhanced salmon interaction. They pointed out that the issues of concern to the Council must be considered by governments within a spectrum of other important matters. For instance, the value of hatchery-produced salmon was said to be considerable in the many streams where wild salmon had already become completely absent.

In other instances, it was suggested to the Council that the protection of wild salmon stocks is more important than producing fish to catch and that it should be given precedence, and that the management of enhancement should be more risk-averse.

Reinvigorating volunteer contributions for enhancement was suggested as the way to marshal the resources needed to make hatcheries more cost-effective and linked to communities for support.

4. What We Heard: Key Themes

The PFRCC found that, in general, the participants in this process tended to be pro-hatchery and were particularly concerned about the effects that curtailing enhancement could have on their opportunities to fish. This was hardly surprising given that many of the participants in the public meetings were involved in salmon enhancement and fishing, and all of the participants in the bilateral meetings were salmon experts of one kind or another involved in science, management, enhancement, fishing, and conservation in general. With the exception of First Nations, who were under-represented, the Council heard from a broad cross-section of those involved with, and knowledgeable about, all facets of enhancement.

The participants in the consultations passionately felt that there was something important at stake. For some, it was wild salmon. For most, it was their job, their recreation or even their sense of community. In all the meetings, those strong passions, as much as observation and reason, formed the basis for perceptions about what was going wrong, and what was needed to solve the "salmon problem".

The following points made by the participants emerged as themes in the community and bilateral meetings:

1. Enhancement and hatcheries are very important to British Columbians because they enable and support fishing along with providing other important benefits.
    a) A large number of participants were in favour of enhancement and hatcheries and most were motivated by a desire to maintain or increase their opportunities to go fishing. Some put it quite bluntly, saying such things as, "I'd rather have hatchery salmon than no salmon at all."
    b) There is a widespread belief that there would be no fishing without hatcheries and enhancement:
        i) This view applied to the coho sport fishery in the Strait of Georgia.
        ii) It also included the belief that commercial fisheries were dependent on enhancement and would be closed without it.
    c) There was a general belief that the positive economic spin-offs of hatcheries and enhancement outweighed any possible negative impacts to wild salmon.
2. A large proportion of those consulted believed that concerns about the potentially negative impacts of enhancement on wild salmon have either been fixed or are unsubstantiated, misguided or irrelevant.
    a) Some involved in urban stream restoration, when asked how they felt about the potential dangers of releasing enhanced fish, made statements along the lines of, "As a proud parent, do I care?"
    b) Some suggested that academic studies critical of hatcheries are inconclusive, especially with respect to genetic impacts.
    c) Some contended that mixed stock fishery problems are now past, since all fishing is now substantially selective.

d) A view was put forward that potential hatchery/wild interactions must be seen in the context of other impacts on wild salmon, such as habitat degradation, that are much more threatening and for which enhancement is an appropriate technological solution.

e) Many participants called for improved habitat management and increased enforcement of habitat regulations: those that damage habitat should pay.

f) Others, including scientists involved in the consultations, expressed the view that the risks of enhancement to wild salmon are real and should be carefully researched and considered in the context of the precautionary approach.

3. Technology and research could provide solutions to any negative impacts that remain in enhancement.

    a) More and better science concerning stocks, habitats and fisheries is needed. The suggestion that more research is needed might be a reflection of participants' beliefs that excessive fisheries and habitat loss are sufficient explanations of problems with wild salmon, and that enhancement is the only activity that is actually working.

    b) For some, the results of hatchery experiments could be used to demonstrate the importance of research at hatcheries, but many of those experiments have never been analyzed.

4. There is widespread cynicism and distrust of DFO

    a) There is considerable suspicion that DFO is seeking any excuse for enhancement funding cuts, regardless of the relative merits of hatchery programs.

    b) There is a need to involve local communities and stakeholders in local decision-making on all matters involving their salmon.

    c) Local stakeholders should be given the same standing in decision-making as scientists.

    d) Needed is a bolstering of support for volunteers working with DFO in enhancement and stewardship.

The PFRCC has greatly benefited from the perspectives and local knowledge shared with us in these consultations. The Council understands clearly that this is a topic people feel passionately about and for the most part believe enhancement has a role in salmon management.

The PFRCC will continue to pursue this topic, in the belief that enhancement can be carried out in ways that reduce or eliminate impacts on wild fish. In this regard, Council members are currently reviewing and discussing all of the information made available to them. They are proceeding with an Advisory that will contain specific recommendations.

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